

Appl. No. 10/043,832
Atty. Docket No. 8835
Amdt. dated June 24, 2004
Reply to Office Action of April 26, 2004
Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A cleaning apparatus, said apparatus comprising:
 - a) a plenum;
 - b) a head connected to said plenum said head including:
 - i) a nozzle;
 - ii) at least two banks of air jets wherein at least one bank of air jets is offset from a second bank of air jets; and
 - iii) at least three vacuum ports wherein at least one of said three vacuum ports includes a partition, said partition separating said vacuum port from at least one of said two banks of air jets, said partition including a beveled edge, said beveled edge oriented in the upward direction of air flow, wherein said beveled edge comprises an angle of less than about 45° from the surface of the partition.
2. (Original) The cleaning apparatus of Claim 1 wherein said nozzle is positioned inside one of said vacuum ports.
3. (Original) The cleaning apparatus of Claim 1 wherein said nozzle is positioned outboard of said vacuum ports.
4. (Original) The cleaning apparatus of Claim 1 wherein the local velocity within a substantial portion of said head and said plenum is greater than about 2.0 m/s for a cleaning fluid droplet size of 450µm.
5. (Original) The cleaning apparatus of Claim 1 further comprising an aerodynamic surface which comprises the interior surface of said cleaning apparatus.
6. (Original) The cleaning apparatus of Claim 5 wherein said aerodynamic surface comprises the interior surface of said plenum.
7. (Original) The cleaning apparatus of Claim 5 wherein said aerodynamic surface comprises the interior surface of said head.
8. (cancelled)

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9. (cancelled)

10. (Original) The cleaning apparatus of Claim 1 further comprising an anti-plate stripping element.

11. (Currently amended) A cleaning apparatus, said apparatus comprising:

a) a plenum;

b) a head connected to said plenum said head including:

i) a nozzle;

ii) at least two banks of air jets wherein at least one bank of air jets is offset from a second bank of air jets;

iii) at least three vacuum ports wherein each of said vacuum ports is separated by a partition, said partition extending upwardly from the bottom of said head, and wherein said partition includes a beveled edge oriented upwardly in the upward direction of air flow through said head, said beveled edge comprising an angle less than or equal to about 45° from the surface of the partition; and

iv) an aerodynamic surface,

wherein: a cleaning fluid comprising droplets each having a conveying velocity is conveyed from the nozzle; and

a vacuum is applied to the cleaning apparatus yielding a vacuum flow rate of between about 66 SCFM and about 168 SCFM, the vacuum flow rate yielding a local velocity that is greater than substantially all of the droplet conveying velocities.

12. (Original) The cleaning apparatus of Claim 11 having two banks of air jets wherein one bank of air jets includes one more air jet than said second bank of air jets.

13. (Previously presented) The cleaning apparatus of Claim 11 having two banks of air jets wherein one bank of air jets is offset by one-half pitch from the second bank of air jets.

14. (Cancelled)

15. (Currently amended) The cleaning apparatus of Claim ~~14~~ 11 wherein said nozzle is outboard of said vacuum ports.

16. (Previously presented) The cleaning apparatus of Claim 15 wherein the angular relationship between said nozzle and a surface to be cleaned as measured in the direction relative to normal of the surface is about -25° to about -75°.

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17. (Currently amended) The cleaning apparatus of Claim 14 11 wherein said nozzle is positioned inside one of said vacuum ports and wherein the angular relationship between said nozzle and a surface to be cleaned is about -6° to about 12° .

18. (Cancelled)

19. (Cancelled)

20. (Currently amended) The cleaning apparatus of Claim 9- 1 wherein said beveled edge comprises an angle of less than about 15° from the surface of the partition.

21. (Cancelled)

22. (Cancelled)

23. (Currently amended) A cleaning apparatus, said apparatus comprising:

a) a plenum;

b) a head connected to said plenum said head including:

i) a nozzle;

ii) at least two banks of air jets wherein at least one bank of air jets is offset from a second bank of air jets; and

iii) at least three vacuum ports wherein each of said vacuum ports is separated by a partition, said partition extending upwardly from the bottom of said head, and wherein said partition includes a beveled edge oriented upwardly in the upward direction of air flow through said head, said beveled edge comprising an angle less than or equal to about 45° from the surface of the partition, and

wherein:

a cleaning fluid comprising droplets each having a conveying velocity is conveyed from the nozzle; and

a vacuum is applied to the cleaning apparatus yielding a vacuum flow rate of between about 66 SCFM and about 168 SCFM, the vacuum flow rate yielding a local velocity that is greater than substantially all of the droplet conveying velocities.